# Research Associates (R&D)

## What They Do

Research Associates work individually and as part of a team in doing research and laboratory tasks. Directed by a scientist, they use electron microscopes, computers, thermal cyclers, and a wide variety of other equipment to study the properties of cells and parts of cells. They regularly record and analyze their findings, and interpret results in the forms of technical reports, summaries, protocols, and quantitative analyses. They keep current on methods and breakthroughs through reading scientific journals and publications. Research Associates participate in scientific conferences and publish articles for scientific journals.

They are involved in many scientific fields of study, including sequencing DNA from a human, animal, plant or other source, or recombining DNA from different organisms to create a new or improved product such as a drug or a better crop plant. Research Associates are sometimes expected to identify patentable inventions for their employer.

*Research Associates in the biotech industry share characteristics of Biochemists & Biophysicists, Microbiologists, Zoologists & Wildlife Biologists, Life Scientists, All Other, and Chemists. Detailed descriptions of these occupations may be found in the Occupational Information Network (O*NET) at online.onetcenter.org.*

Important skills, knowledge, and abilities include:

- Chemistry – Knowledge of the chemical composition, structure, and properties of substances and of the chemical processes and transformations that they undergo. This includes uses of chemicals and their interactions, danger signs, production techniques, and disposal methods.
- Biology – Knowledge of plant and animal organisms, their tissues, cells, functions, interdependencies, and interactions with each other and the environment.
- Physics – Knowledge and prediction of physical principles, laws, their interrelationships, and applications to understanding fluid, material, and atmospheric dynamics, and mechanical, electrical, atomic and subatomic structures and processes.
- Mathematics – Knowledge of arithmetic, algebra, geometry, calculus, statistics, and their applications.
- Science – Using scientific rules and methods to solve problems.
- Critical Thinking – Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.
- Complex Problem Solving – Identifying complex problems and reviewing related information to develop and evaluate options and implement solutions.
- Inductive Reasoning – The ability to combine pieces of information to form general rules or conclusions (includes finding a relationship among seemingly unrelated events).
- Deductive Reasoning – The ability to apply general rules to specific problems to produce answers that make sense.
- Writing – Communicating effectively in writing as appropriate for the needs of the audience.

EDD Employment Development Department State of California

LMID Labor Market Information Division "Your Information Source"

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## Training/Requirements

- Bachelor or master's degree in a discipline such as biology, biochemistry, chemistry, molecular biology, or biotechnology.
- Possess up to two years of laboratory experience with master's and two to five years with bachelor's. (See **Additional Sources of Information**.)

## What's the California Job Outlook?

While the Bureau of Labor Statistics does not collect data on Research & Development Research Associates, the occupations listed below are found in the biotechnology industry and have similar duties. The California outlook and wages figures are drawn from all industries and represent occupations comparable to Research Associates.

| Standard Occupational Classification | Estimated Number of Workers 2002 | Estimated Number of Workers 2012 | Average Annual Openings | 2005 Wage Range (per hour) |
|---|---|---|---|---|
| **Biochemists & Biophysicists** | | | | |
| 19-1021 | 2,700 | 3,700 | 190 | $23.14 to $42.55 |
| **Microbiologists** | | | | |
| 19-1022 | 1,600 | 2,200 | 110 | $22.58 to $37.74 |
| **Life Scientists, All Other** | | | | |
| 19-1099 | 5,800 | 7,400 | 260 | $27.02 to $40.97 |
| **Chemists** | | | | |
| 19-2031 | 10,300 | 12,700 | 580 | $20.51 to $37.71 |
| **Zoologists** | | | | |
| 19-1023 | 1,500 | 1,700 | 70 | $19.54 to $33.54 |

*These figures do not include self-employment.*

***Average annual openings** include new jobs plus openings due to separations.*

*Source: www.labormarketinfo.edd.ca.gov , Employment Projections by Occupation and OES Employment & Wages by Occupation, Labor Market Information Division, Employment Development Department.*

## Additional Sources of Information

Society of Clinical Research Associates
(800) 762-7292
www.socra.org

Occupational Information Network (O*NET)
http://online.onetcenter.org

Biotechnology Careers

Employment Development Department
State of California

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